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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,066	10/23/2003	Osamu Sekihata	FUJH 20.698	7290

26304 7590 04/04/2008
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EXAMINER	
HAILE, FEBEN	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
04/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,066	SEKIHATA, OSAMU	
	Examiner	Art Unit	
	Feben M. Haile	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-6* is/are rejected.

7)☒ Claim(s) *7-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Argument

1. In view of applicant's amendment filed March 11, 2008, the status of the application is still pending with respect to claims 4-12.

2. The amendment filed is insufficient to overcome the rejection of claims 4-12 based upon Kalman et al. (US 6, 680,912), IEEE 802.17 Working Group, "Proposed Draft Standard: Part 17: Resilient Packet Ring Access Method and Physical Layer Specifications", hereinafter referred to as IEEE 802.17 Draft, Oran (US 7,085,224), and newly discovered references Garcia-Luna-Aceves et al. (US 2003/0165117), Benedetto et al. (US 7,076,594), and Kanamaru et al. (US 6,574,197) set forth in this Office action because: the claimed invention fail to further clarify a distinction between the Applicants invention and the cited references, thus the subject matter is not patentable.

Information Disclosure

3. The information disclosure statement filed September 18, 2007 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the Japanese Office Action does not include an English translation. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with

the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalman et al. (US 6, 680,912), hereinafter referred to as Kalman, in view of IEEE 802.17 Working Group, "Proposed Draft Standard: Part 17: Resilient Packet Ring Access Method and Physical Layer Specifications", hereinafter referred to as IEEE 802.17 Draft, in view of Oran (US 7,085,224), hereinafter referred to as Oran, in view of Garcia-Luna-Aceves et al. (US 2003/0165117), hereinafter referred to as Garcia-Luna-Aceves.

Regarding claim 4, Kalman discloses on detection of a link failure between mutually neighboring layer 2 switches, transmitting a failure notification frame packet from each neighboring layer 2 switch **(figure 5 and column 6 lines 8-10; upon detection of an ingress link fault, a node must transmit a neighbor fault notification message)**, wherein, when the network is separated into two network groups caused by a failure **(figure 5 and column 6 lines 16-22; upon detection of an ingress link fault, traffic from node 0 bound for node 5 is wrapped by node 7 onto the opposite ring, i.e. the original path from node 0 to node 5 is a first group**

consisting of nodes 7 & 6 and the protection path from node 0 to node 5 is a second group consisting of nodes 1, 2, 3, & 4), with respect to a host address connected to an arbitrary layer 2 switch **(figure 6; arbitrary node 0; figure 7; includes a CPU; and column 13 lines 48-50; that compares a bit error rate to a predetermined threshold to determine whether the link is satisfactory)**, updating path information in the address learning table in a layer 2 switch, so that a packet transmission direction on the ring is shifted to a port side opposite to the direction having been used up to the present **(column 5 lines 51-59; when a link outage message is received by a given node, the node updates its routing table to force all impacted traffic to be routed the other way around)**.

Kalman fails to explicitly suggest in a layer 2 switch having received the failure notification frame, recording a Media Access Control (MAC) address of said layer2 switch having received the failure notification into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch.

IEEE 802.17 Draft teaches in a layer 2 switch having received the failure notification frame, recording a Media Access Control (MAC) address of said layer2 switch having received the failure notification into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch **(page 85; section 13 Topology Discovery; a node transmits topology discovery packets to another node, that node updates the topology map with a MAC address, and forwards it to the next node where the updating and forwarding is repeated.**

Furthermore, besides discovery, the topology could be updated when a fiber failure is detected).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the topology discovery method taught by IEEE 802.17 Draft into the ring topology disclosed by Kalman. The motivation for such a modification is to provide a protection mechanism.

Kalman, IEEE 802.17 Draft, and/or their combination fail to explicitly suggest providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored.

Oran teaches providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored **(figure 1 unit 14 and column 2 lines 41-44; an Ethernet layer 2 switch; figure 6 unit 62 and column 4 lines 41-42; that includes a table that identifies MAC addresses associated with each port)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the fast failure detection taught by Oran into the fast communication topology in a ring network disclosed by Kalman as modified by the topology discovery method suggested by IEEE 802.17 Draft. The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

Kalman, IEEE 802.17 Draft, Oran, and/or their combination fail to explicitly suggest wherein the updating path information is done in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs.

Garcia-Luna-Aceves teaches updating path information in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs **(page 3 paragraph 0020; a router sends updates to its neighbors regarding link status; page 3 paragraph 0023; however the rules used to decide when a router should communicate changes to the state of the link can be based on optimum routing or least overhead routing approaches; page 8 paragraph 0120; thus after the failure of the link {d,g}, node d sends an update message to neighboring links, however nodes c, e, & f do not generate any update message because there exists a path to all destinations; i.e. nodes c, e, & f constitute one group and nodes a & b another group)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method for communicating labeled routing trees to establish preferred paths taught by Garcia-Luna-Aceves into the fast communication topology in a ring network disclosed by Kalman as modified by the topology discovery method suggested by IEEE 802.17 Draft and the fast failure detection taught by Oran. The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

5. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalman et al. (US 6, 680,912), hereinafter referred to as Kalman, in view of IEEE 802.17 Working Group, "Proposed Draft Standard: Part 17: Resilient Packet Ring Access Method and Physical Layer Specifications", hereinafter referred to as IEEE 802.17 Draft, in view of

Oran (US 7,085,224), hereinafter referred to as Oran, in view of Benedetto et al. (US 7,076,594), hereinafter referred to as Benedetto, in view of Garcia-Luna-Aceves et al. (US 2003/0165117), hereinafter referred to as Garcia-Luna-Aceves.

Regarding claim 5, Kalman discloses on detection of a link failure between mutually neighboring layer 2 switches, transmitting a failure notification frame packet from each neighboring layer 2 switch **(figure 5 and column 6 lines 8-10; upon detection of an ingress link fault, a node must transmit a neighbor fault notification message)**, wherein, when the network is separated into two network groups caused by a failure **(figure 5 and column 6 lines 16-22; upon detection of an ingress link fault, traffic from node 0 bound for node 5 is wrapped by node 7 onto the opposite ring, i.e. the original path from node 0 to node 5 is a first group consisting of nodes 7 & 6 and the protection path from node 0 to node 5 is a second group consisting of nodes 1, 2, 3, & 4)**, with respect to a host address connected to an arbitrary layer 2 switch **(figure 6; arbitrary node 0; figure 7; includes a CPU; and column 13 lines 48-50; that compares a bit error rate to a predetermined threshold to determine whether the link is satisfactory)**, updating path information in the address learning table in a layer 2 switch, so that a packet transmission direction on the ring is shifted to a port side opposite to the direction having been used up to the present **(column 5 lines 51-59; when a link outage message is received by a given node, the node updates its routing table to force all impacted traffic to be routed the other way around)**.

Kalman fails to explicitly suggest in a layer 2 switch having received the failure notification frame, recording a Media Access Control (MAC) address of said layer2 switch having received the failure notification into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch.

IEEE 802.17 Draft teaches in a layer 2 switch having received the failure notification frame, recording a Media Access Control (MAC) address of said layer2 switch having received the failure notification into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch **(page 85; section 13 Topology Discovery; a node transmits topology discovery packets to another node, that node updates the topology map with a MAC address, and forwards it to the next node where the updating and forwarding is repeated. Furthermore, besides discovery, the topology could be updated when a fiber failure is detected)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the topology discovery method taught by IEEE 802.17 Draft into the ring topology disclosed by Kalman. The motivation for such a modification is to provide a protection mechanism.

Kalman, IEEE 802.17 Draft, and/or their combination fail to explicitly suggest providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored.

Oran teaches providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored **(figure 1**

unit 14 and column 2 lines 41-44; an Ethernet layer 2 switch; figure 6 unit 62 and column 4 lines 41-42; that includes a table that identifies MAC addresses associated with each port).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the fast failure detection taught by Oran into the fast communication topology in a ring network disclosed by Kalman as modified by the topology discovery method suggested by IEEE 802.17 Draft. The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

Kalman, IEEE 802.17 Draft, Oran, and/or their combination fail to explicitly suggest wherein, on receipt of the failure notification frame in a layer 2 switch having a blocking port, said layer 2 switch stores a record, indicative of the layer 2 switch of interest having a blocking port, into the failure notification frame.

Benedetto teaches wherein, on receipt of the failure notification frame in a layer 2 switch having a blocking port, said layer 2 switch stores a record, indicative of the layer 2 switch of interest having a blocking port, into the failure notification frame **(figure 9 and column 10 lines 1-3; a topology change notification message, i.e. failure notification frame, is used by a L2 switch which determines that a port must be transitioned to blocking)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method for preventing one way connectivity loops taught by Benedetto into the fast communication topology in a ring network disclosed by Kalman as modified by the topology discovery method suggested by IEEE

802.17 Draft and the fast failure detection taught by Oran. The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

Kalman, IEEE 802.17 Draft, Oran, Benedetto, and/or their combination fail to explicitly suggest wherein the updating path information is done in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs.

Garcia-Luna-Aceves teaches updating path information in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs **(page 3 paragraph 0020; a router sends updates to its neighbors regarding link status; page 3 paragraph 0023; however the rules used to decide when a router should communicate changes to the state of the link can be based on optimum routing or least overhead routing approaches; page 8 paragraph 0120; thus after the failure of the link {d,g}, node d sends an update message to neighboring links, however nodes c, e, & f do not generate any update message because there exists a path to all destinations; i.e. nodes c, e, & f constitute one group and nodes a & b another group)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method for communicating labeled routing trees to establish preferred paths taught by Garcia-Luna-Aceves into the fast communication topology in a ring network disclosed by Kalman as modified by the topology discovery method suggested by IEEE 802.17 Draft, the method for preventing one way connectivity loops taught by Benedetto, and the fast failure detection disclosed by Oran.

The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

6. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalman et al. (US 6, 680,912), hereinafter referred to as Kalman, in view of Kanamaru et al. (US 6,574,197), hereinafter referred to as Kanamaru, in view of IEEE 802.17 Working Group, "Proposed Draft Standard: Part 17: Resilient Packet Ring Access Method and Physical Layer Specifications", hereinafter referred to as IEEE 802.17 Draft, in view of Oran (US 7,085,224), hereinafter referred to as Oran, in view of Garcia-Luna-Aceves et al. (US 2003/0165117), hereinafter referred to as Garcia-Luna-Aceves.

Regarding claim 6, Kalman discloses wherein, when the network is separated into two network groups caused by a failure **(figure 5 and column 6 lines 16-22; upon detection of an ingress link fault, traffic from node 0 bound for node 5 is wrapped by node 7 onto the opposite ring, i.e. the original path from node 0 to node 5 is a first group consisting of nodes 7 & 6 and the protection path from node 0 to node 5 is a second group consisting of nodes 1, 2, 3, & 4)**, with respect to a host address connected to an arbitrary layer 2 switch **(figure 6; arbitrary node 0; figure 7; includes a CPU; and column 13 lines 48-50; that compares a bit error rate to a predetermined threshold to determine whether the link is satisfactory)**, updating path information in the address learning table in a layer 2 switch, so that a packet transmission direction on the ring is shifted to a port side opposite to the direction having been used up to the present **(column 5 lines 51-59; when a link outage**

message is received by a given node, the node updates its routing table to force all impacted traffic to be routed the other way around).

Kalman fails to explicitly suggest transmitting a state notification frame packet from a layer 2 switch connected in the ring shape successively to neighboring layer 2 switches; in the neighboring layer 2 switch, detecting that the corresponding neighboring layer 2 switch is faulty when the state notification frames are not received for a predetermined number of times.

Kanamaru teaches transmitting a state notification frame packet from a layer 2 switch connected in the ring shape successively to neighboring layer 2 switches **(column 6 lines 3-9; a node receives a request from a neighboring node and sends a response according to its status table)**; in the neighboring layer 2 switch, detecting that the corresponding neighboring layer 2 switch is faulty when the state notification frames are not received for a predetermined number of times **(column 6 lines 52-63; unless the response is reached within a predetermined period of time, it is determined that there is something wrong with the node)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the network monitoring device taught by Kanamaru into the ring topology disclosed by Kalman. The motivation for such a modification is to decrease the length of time at which a node is monitored without increasing the amount of communication processing.

Kalman, Kanamaru, and/or their combination fails to explicitly suggest recording a Media Access Control (MAC) address of said layer2 switch having received the failure

notification into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch.

IEEE 802.17 Draft teaches in a layer 2 switch having received the failure notification frame, recording a Media Access Control (MAC) address of said layer2 switch having received the failure notification into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch **(page 85; section 13 Topology Discovery; a node transmits topology discovery packets to another node, that node updates the topology map with a MAC address, and forwards it to the next node where the updating and forwarding is repeated. Furthermore, besides discovery, the topology could be updated when a fiber failure is detected)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the topology discovery method taught by IEEE 802.17 Draft into the ring topology disclosed by Kalman as modified by the network monitoring device taught by Kanamaru. The motivation for such a modification is to provide a protection mechanism.

Kalman, Kanamaru, IEEE 802.17 Draft, and/or their combination fail to explicitly suggest providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored.

Oran teaches providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored **(figure 1 unit 14 and column 2 lines 41-44; an Ethernet layer 2 switch; figure 6 unit 62 and**

column 4 lines 41-42; that includes a table that identifies MAC addresses associated with each port).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the fast failure detection taught by Oran into the fast communication topology in a ring network disclosed by Kalman as modified by the network monitoring device taught by Kanamaru and the topology discovery method suggested by IEEE 802.17 Draft. The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

Kalman, Kanamaru, IEEE 802.17 Draft, Oran, and/or their combination fail to explicitly suggest wherein the updating path information is done in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs.

Garcia-Luna-Aceves teaches updating path information in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs **(page 3 paragraph 0020; a router sends updates to its neighbors regarding link node status; page 3 paragraph 0023; however the rules used to decide when a router should communicate changes to the state of the link can be based on optimum routing or least overhead routing approaches; page 8 paragraph 0120; thus after the failure of the link {d,g}, node d sends an update message to neighboring links, however nodes c, e, & f do not generate any update message because there exists a path to all destinations; i.e. nodes c, e, & f constitute one group and nodes a & b another group)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the method for communicating labeled routing trees to establish preferred paths taught by Garcia-Luna-Aceves into the fast communication topology in a ring network disclosed by Kalman as modified by the network monitoring device taught by Kanamaru, the topology discovery method suggested by IEEE 802.17 Draft, and the fast failure detection taught by Oran. The motivation for such a modification is decreasing the number of data loss that occurs by traveling over failures.

Allowable Subject Matter

7. The indicated allowability of claims 4-6 is withdrawn in view of the newly discovered reference(s) to Garcia-Luna-Aceves et al. (US 2003/0165117), Benedetto et al. (US 7,076,594), and Kanamaru et al. (US 6,574,197).

8. Claims 7-12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 4-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Feben M. Haile whose telephone number is (571) 272-3072. The examiner can normally be reached on 10:00am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Feben M Haile/
Examiner, Art Unit 2616

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2616